



IOWA DEPARTMENT OF NATURAL RESOURCES

Sport Fish Restoration Research Findings

EVALUATION OF IMPORTANCE OF
SPECIFIC IN-STREAM HABITATS TO FISH
POPULATIONS AND POTENTIAL FOR
PROTECTING OR ENHANCING IOWA'S
INTERIOR RIVER RESOURCES



Project Duration: 1995-2013

Location: Statewide



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EVALUATION OF IMPORTANCE OF SPECIFIC IN-STREAM HABITATS TO FISH POPULATIONS AND POTENTIAL FOR PROTECTING OR ENHANCING IOWA'S INTERIOR RIVER RESOURCES

Interior rivers and streams are the most abundant and locally accessible water resources available to Iowa anglers and provide substantial and diverse fishing opportunities. Stream habitat is a key factor influencing the composition and abundance of stream fish. Iowa's river and stream fish resources have been, and continue to be, impacted by habitat degradation. Identifying factors impacting fish in Iowa's interior rivers increases our ability to protect and improve these important resources. Successful habitat protection or enhancement depends on identifying critical habitats of target species, understanding physical and hydrological parameters of those habitats, and knowing how and when fish use these habitats and move between them.

GOALS

- To describe and evaluate the role of barriers to fish passage and physical habitat in structuring fish groups in Iowa's non-wadeable rivers.
- To identify the importance and function of river habitats by documenting seasonal movements and habitat use of game fish.
- To identify specific physical and hydrologic conditions of critical river habitats and their associated value to game fish.



RESULTS

- Connectivity to downstream large water bodies (Mississippi River or large reservoirs) played a primary role in structuring fish groups. Relationships between fish groups and physical habitat were likely confounded by the influence of dams.
- Seasonal movement patterns of Channel Catfish, Walleye, and Smallmouth Bass were primarily associated with movements to and from overwintering areas. Overwintering areas for all three species were deeper, and had lower water velocities than habitats used during other seasons. Northern Pike moved laterally to floodplain backwaters whenever river levels made these habitats available.

- Overwintering areas on the Wapsipinicon River were deep (12-25 feet) with little to no flow.

CONCLUSIONS

- Removal of barriers to upstream fish passage by modifying or removing dams is likely to affect fish groups.
- The influence of dams should be considered in the design of future studies of fish group/habitat relationships in Iowa's non-wadeable rivers to gain a better understanding of the role of habitat in structuring fish groups.
- Barriers to fish movement, such as dams, can have detrimental impacts on river game fish populations in Iowa. Seasonal movement patterns and shifts in habitat use should be considered in the management of fish populations in river systems, and the design and interpretation of river fish population surveys.
- Existing backwater habitats should be targeted for protection, and connections between these areas and the main channel should be maintained and enhanced wherever possible.
- Potential overwintering areas that share characteristics of those on the Wapsipinicon River should be identified for other interior river reaches in Iowa and protected. River reaches that lack overwintering habitats should be identified, and options explored for restoring connections to reaches that have winter habitats.